Technology Trends Among Developers 2024–2025

Author: Akar Abdalqadir

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OUTLINE

- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

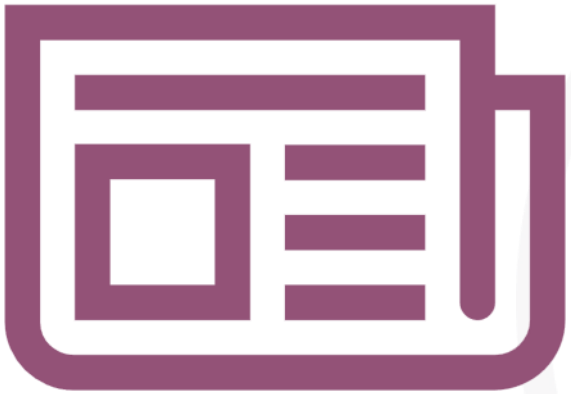
EXECUTIVE SUMMARY

- The data of our case study came from Stack “Overflow Developer Survey”.
- Analysis of job market data highlights **current and emerging technology trends**.
- **Java, C, and JavaScript** dominate today’s programming usage, while **C, Java, and JavaScript** remain strong in future demand.
- **PostgreSQL, MySQL, and SQLite** lead database usage, but **PostgreSQL and Redis** are projected to grow further.
- Dashboards show clear patterns in **developer demographics**, **technology adoption**, and **future interest**.
- Findings provide **strategic insights for learners, professionals, and organizations** in adapting to evolving technology.

INTRODUCTION

- **Purpose**: To identify key technology trends in programming languages and databases using real-world developer survey data.
- **Target Audience**:
  - Aspiring developers
  - Technology managers and recruiters
  - Educators and training providers
- **Value**: Helps learners focus on in-demand skills, guides organizations in hiring, and supports academic institutions in updating curricula.

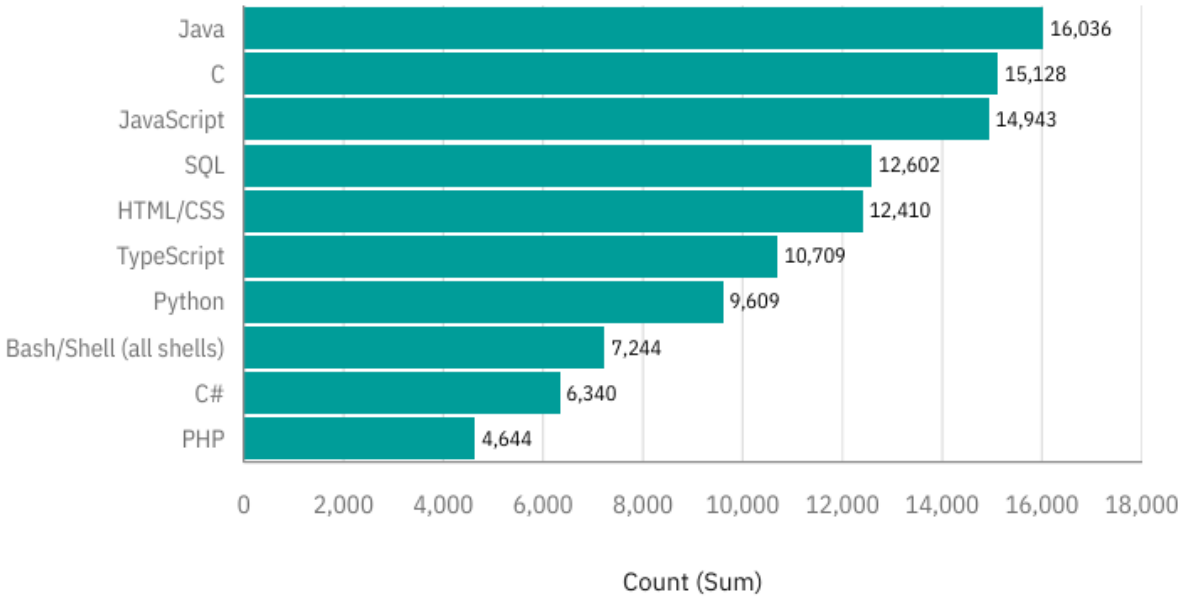
METHODOLOGY



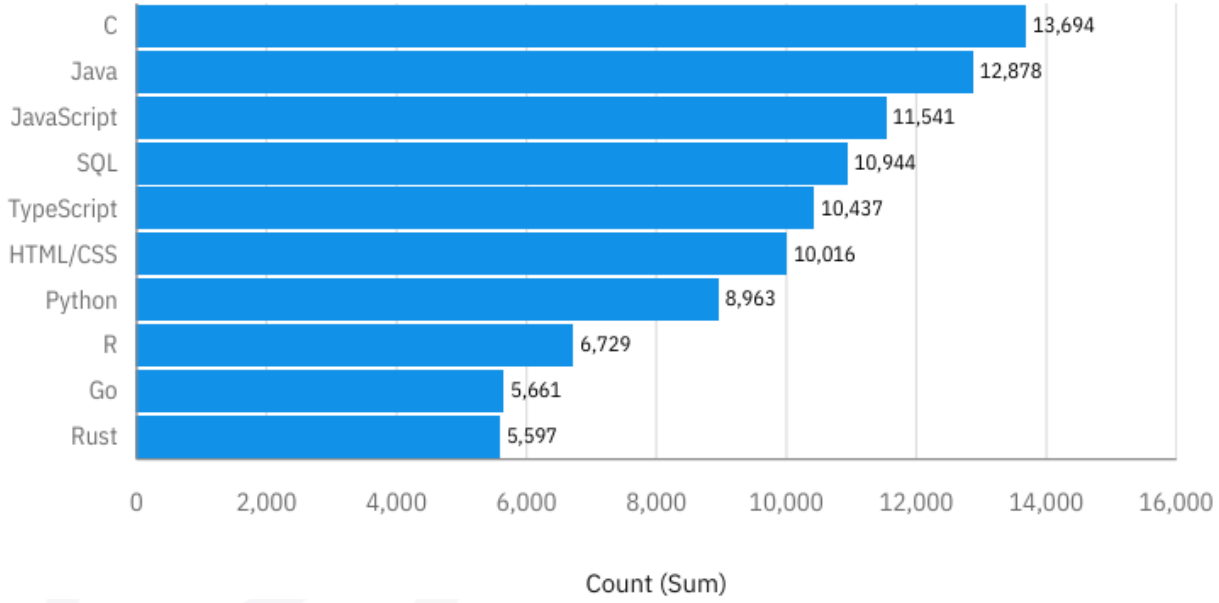
- **Data Source**: Stack Overflow Developer Survey data
- **Collection Methods**: Job posting analysis, API queries, and structured survey responses.
- **Data Wrangling**:
  - Cleaned missing values
  - Filtered for top 10 categories
  - Standardized naming across datasets
- **Visualization**: Created bar charts and dashboards for comparative analysis using IBM Cognos Analysis.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

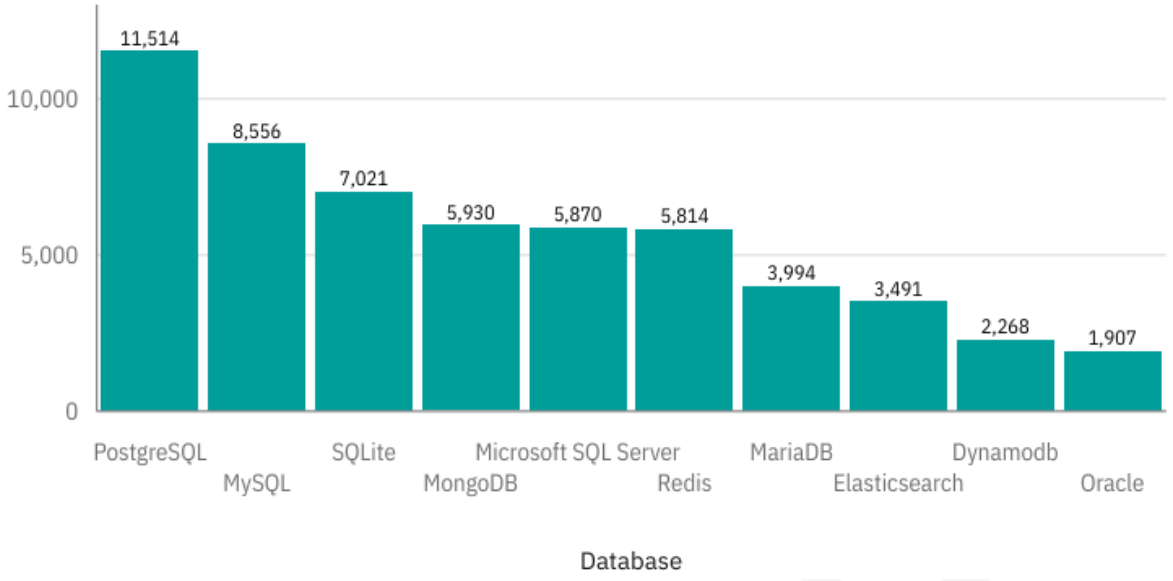
- **C** and **Java** remain top-ranked.
- **Python** drops in relative ranking, but still holds a significant share.
- Emerging languages **(Rust, Go, R)** appear in the top 10.
- **TypeScript** continues rising, highlighting the ongoing dominance of web and full-stack development.

Implications

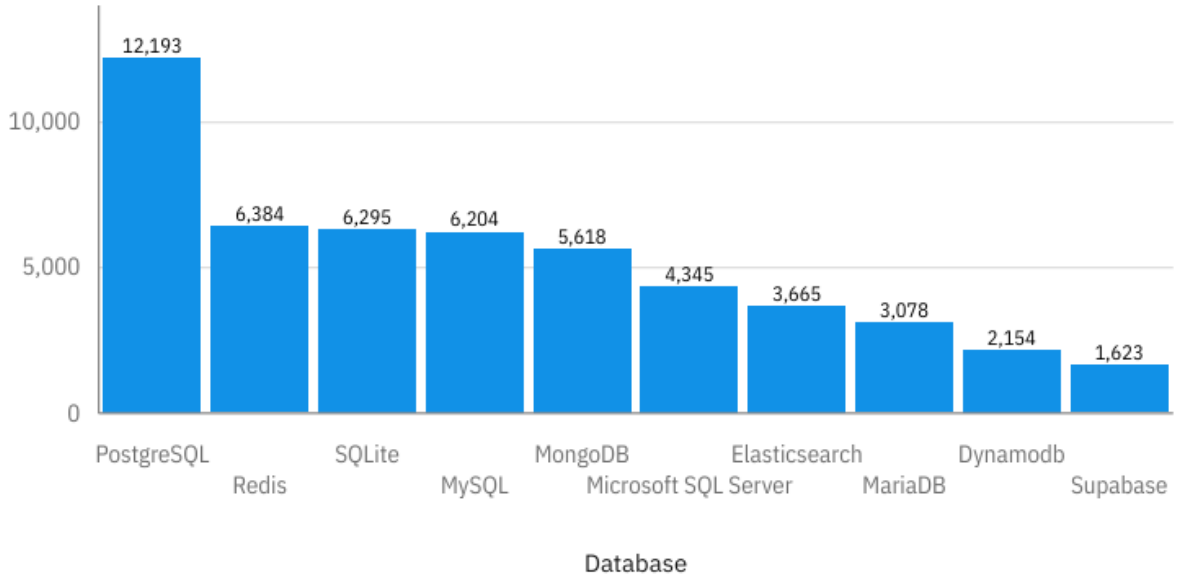
- **C, Java, JavaScript** remain highly relevant.
- **Python demand is lower** in future compared to current, but still significant.
- **Newcomers (Rust, Go, R)** are gaining traction—valuable for forward-looking developers.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

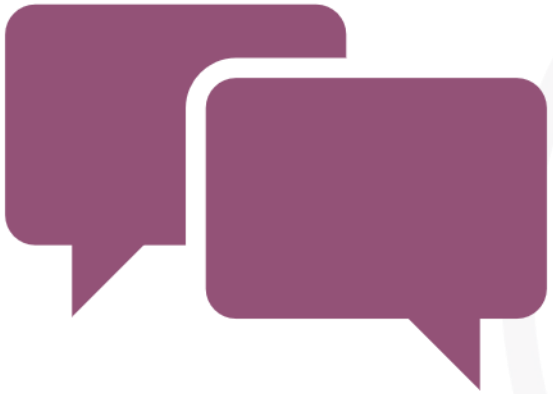
Findings

- Traditional databases **(MySQL, SQL Server, MongoDB)** remain relevant, but their growth is slower compared to newer players.
- **Redis** *shows the largest growth*, reflecting the increasing importance of real-time
- **Supabase** *enters the top 10*, showing a shift toward cloud-native, open-source alternatives.

Implications

- **PostgreSQL** dominates both current and future demand.
- **Redis** *shows rapid growth*, reflecting demand for real-time systems.
- **Supabase** emerges as *a new entrant*, signaling cloud-native database adoption.

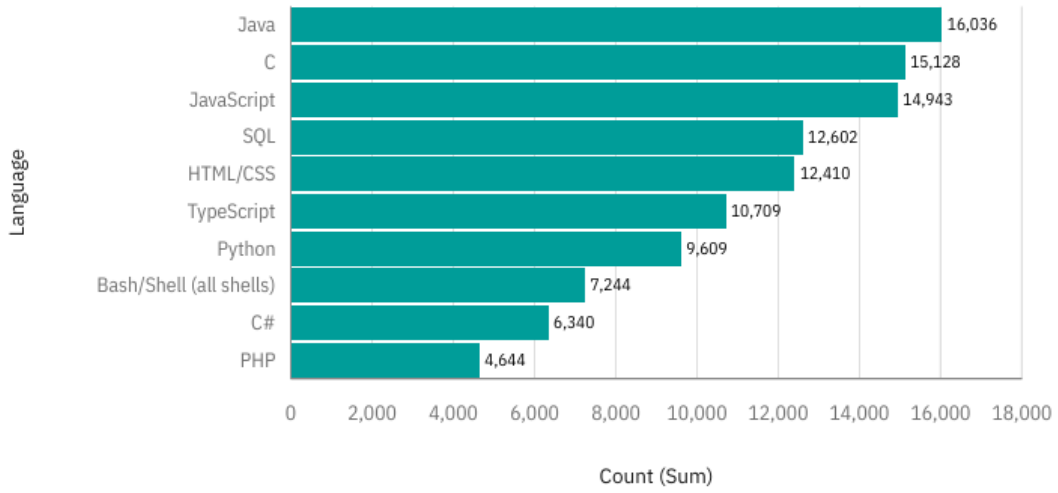
DASHBOARD INSIGHTS



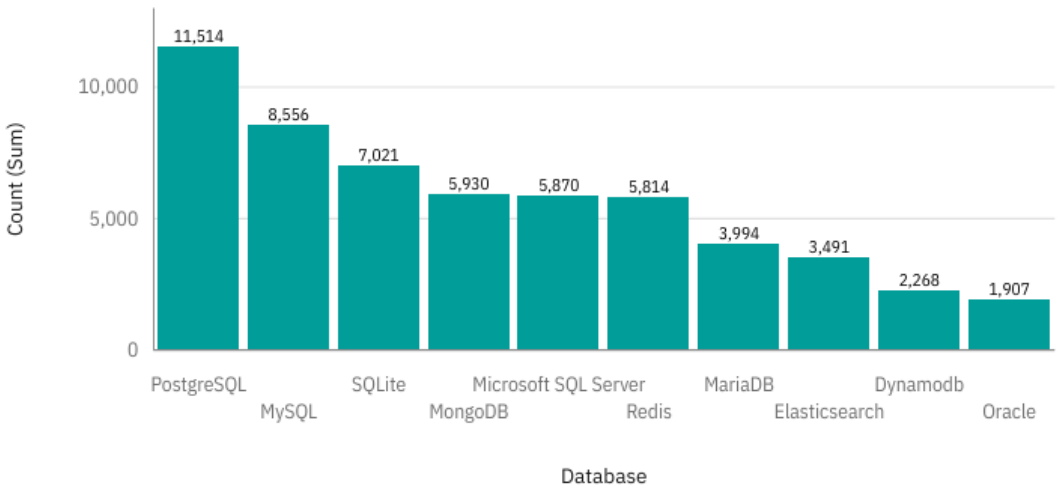
- **Current Technology Usage:**
  - Java, C, and JavaScript dominate programming; PostgreSQL and MySQL lead databases.
- **Future Technology Trends:**
  - Rising interest in Rust, Go, and Redis; cloud-native tools like Supabase emerging.
- **Demographics:**
  - Majority of developers are **25–34 years old** with **Bachelor's degrees**.
  - Strong participation from **U.S. and Europe**, with growing presence in **Asia**.

DASHBOARD 1: Current Technology Usage

Top 10 Programming Languages Developers Have Worked With

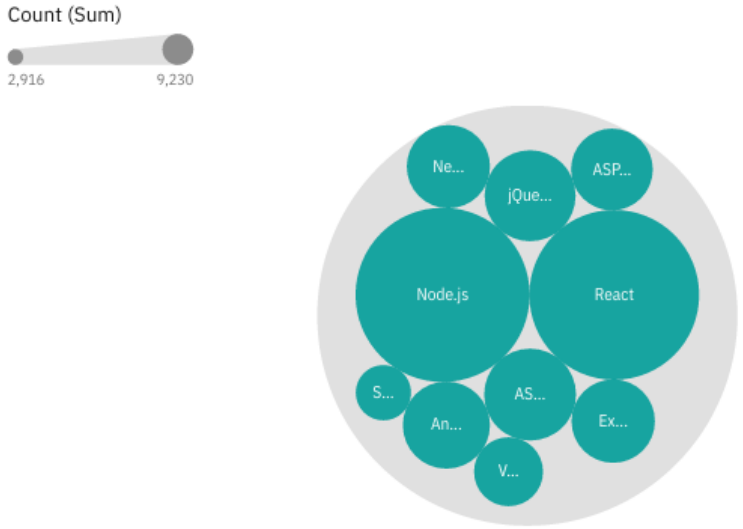


Top 10 Databases Developers Have Worked With



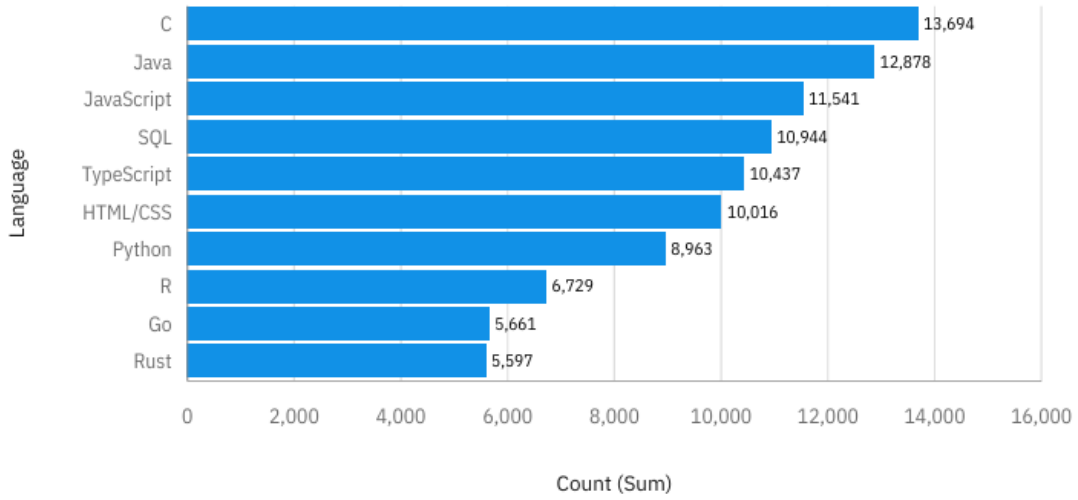
Top 10 Platforms Developers Have Worked With

Top 10 Web Frames Developers Have Worked With

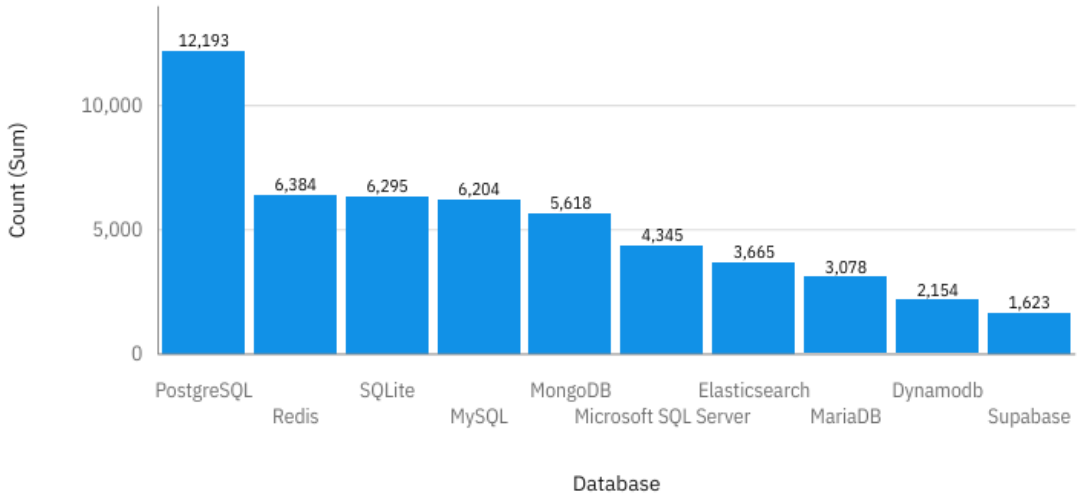


DASHBOARD 2: Future Technology Trend

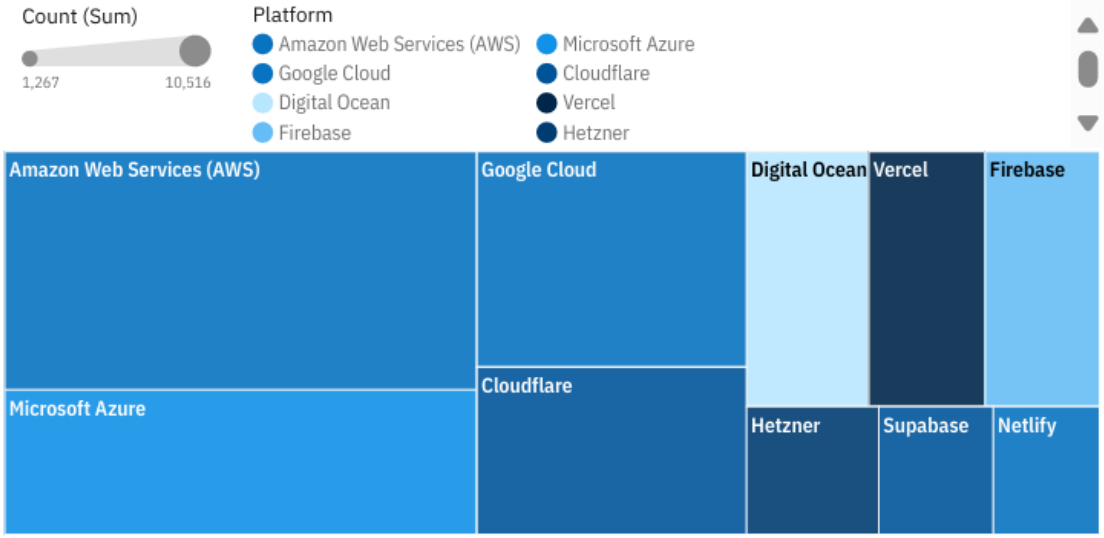
Top 10 Programming Languages Want To Work With



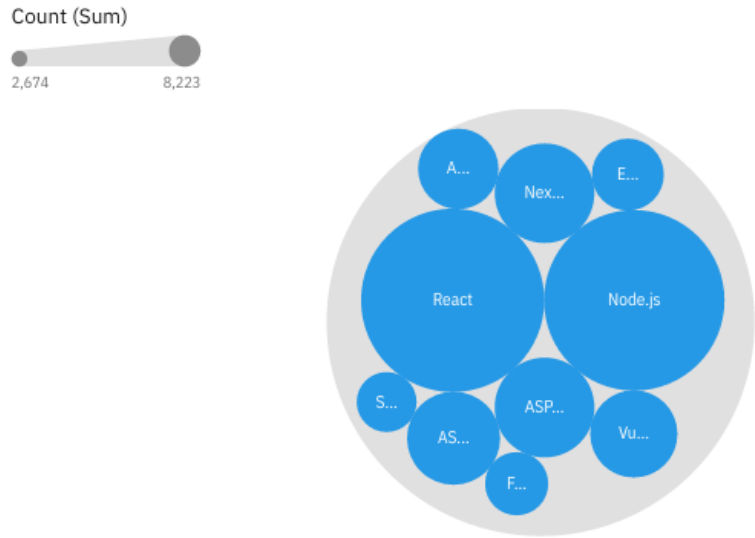
Top 10 Databases Want To Work With



Top 10 Platforms Want To Work With

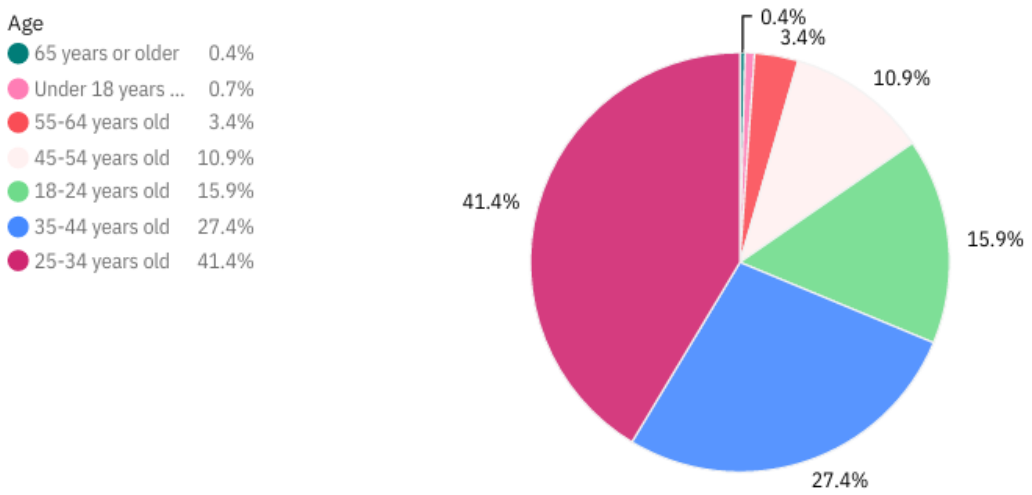


Top 10 Webframes Want To Work With

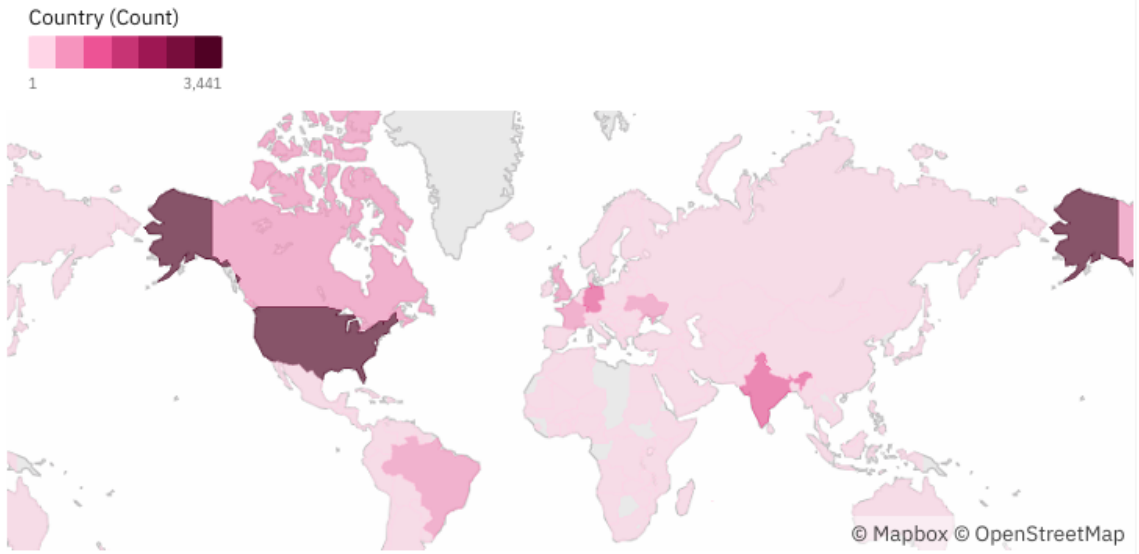


DASHBOARD 3: Demographics

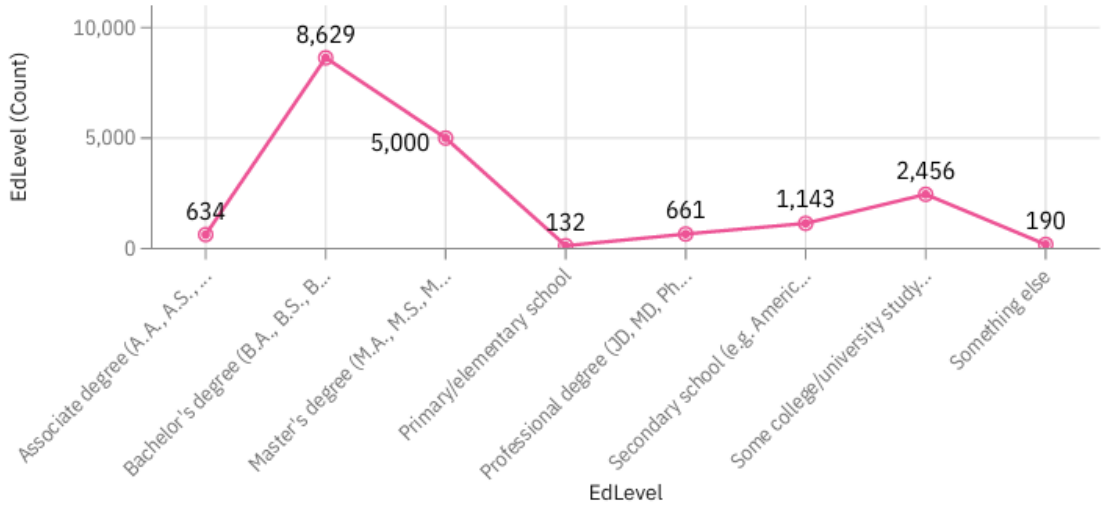
Pie Chart of Respondent distribution by Age



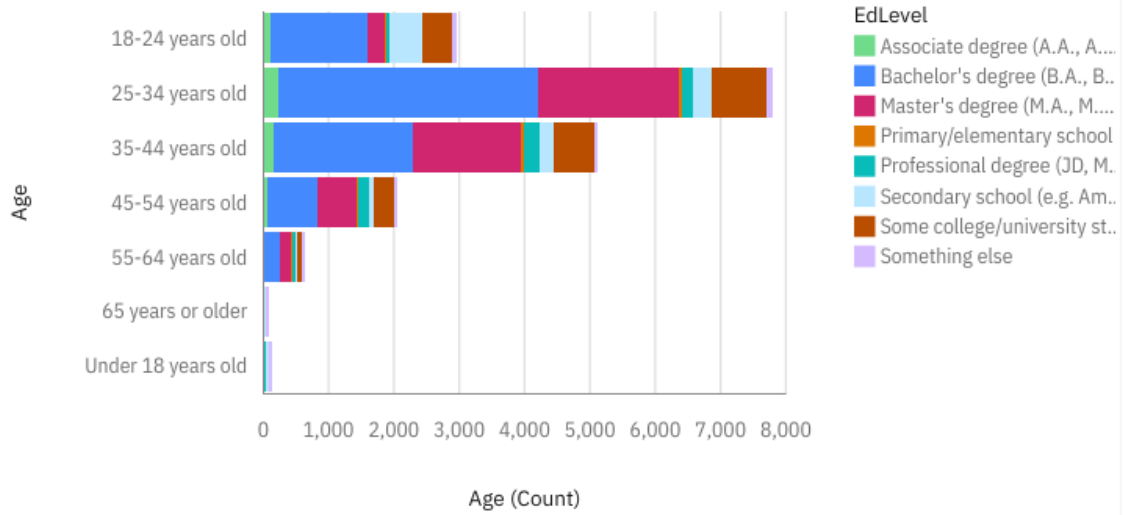
Count of Developers in each Country.



Respondent distribution by Formal Education Level



Respondent Count by Age, classified by Education Level



DISCUSSION

- **Balance of stability and change:** Core tools (Java, C, PostgreSQL, MySQL) remain essential, while emerging ones (Rust, Go, Redis, Supabase) gain momentum.
- **Developer preferences:** Future interest shows a clear shift toward performance-focused languages and cloud-native databases.
- **Demographics:** Majority are 25–34 years old with Bachelor's degrees, shaping the tech workforce profile.
- **Implications:** Learners should blend foundational and emerging skills; organizations must modernize while maintaining legacy systems; educators should update curricula.

OVERALL FINDINGS & IMPLICATIONS

Findings

- **Java, C, JavaScript** dominate usage.
- **PostgreSQL and MySQL** are leading databases.
- **Future interest** shows adoption of Rust, Go, Redis, and Supabase.

Implications

- **Learners** should *focus* on both stable and emerging technologies.
- **Organizations** should *upskill teams* to prepare for shifts in databases and languages.
- **Educators** should *update curricula* to include Rust, Go, Redis, and Supabase.

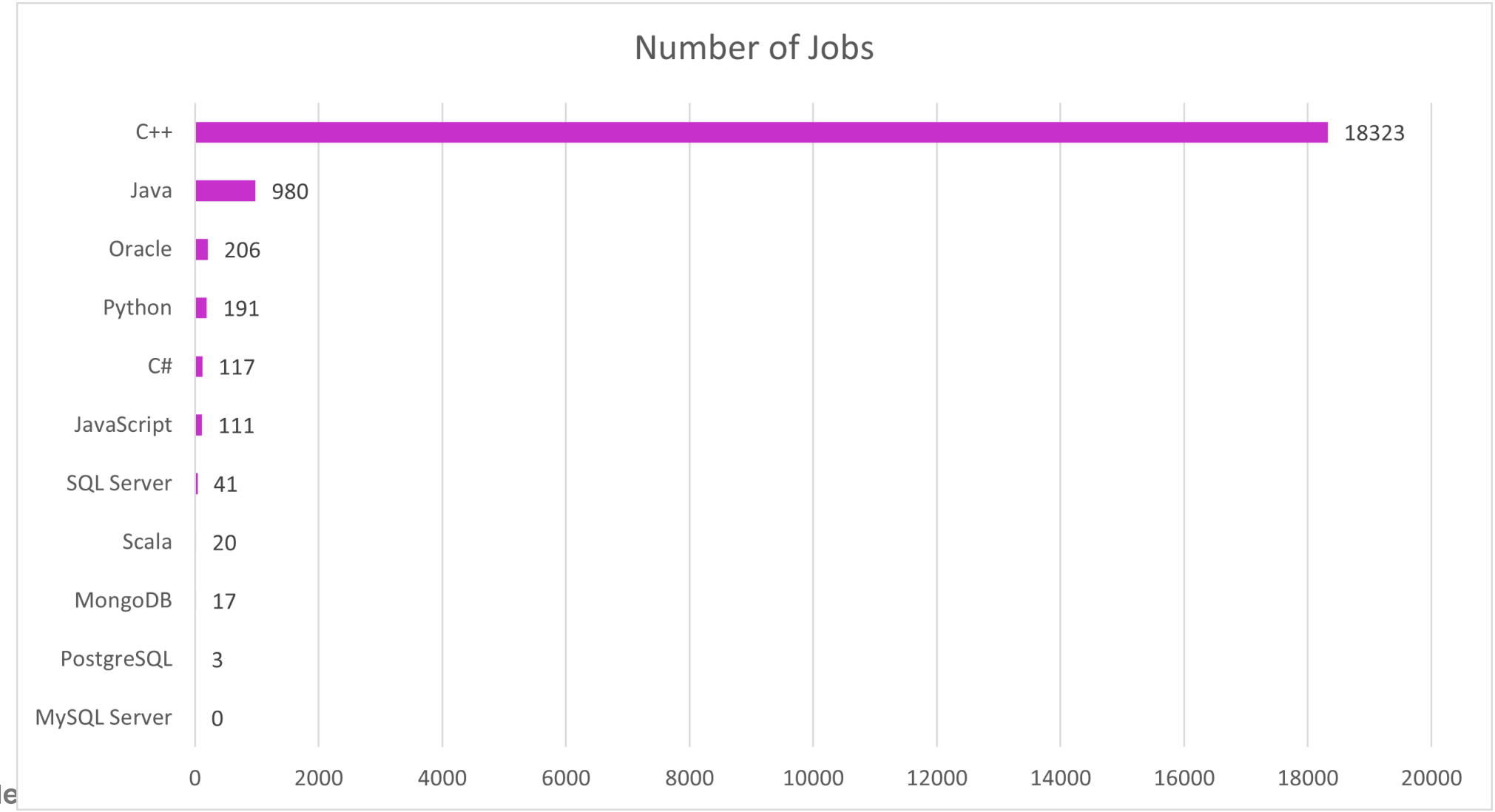
CONCLUSION

- Stack Overflow Developer Survey data was beneficial to our findings
- **Programming skills remain vital** for developers, with Java, C, and JavaScript leading.
- **Databases are evolving**, with PostgreSQL as a consistent leader.
- **Future demand emphasizes flexibility**—developers must adapt to new tools like Rust, Go, Redis, and Supabase.
- **Industry trend**: Growing preference for performance, scalability, and cloud-native tools.
- **Final Note**: Continuous learning is the key to staying competitive.

APPENDIX

- In the next 2 slides, there are two charts for `JOB PPOSTING` and `POPULAR LANGUAGES` that shows more important insights to the trends of technology needs in industries.

JOB POSTINGS



POPULAR LANGUAGES